PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project Idaho Model Watershed Administration/Implementation Support	
BPA project number	**9202603**
Contract renewal date (mm/yyyy)	**12/99**
Multiple actions? (indicate Yes or No)	**yes**
Business name of agency, institution or organization requesting funding **Idaho Soil Conservation Commission**	
Business acronym (if appropriate)	**SCC**
Proposal contact person or principal investigator:	
Name	**Biff Burleigh**
Mailing address	**P.O. Box 83720**
City, ST Zip	**Boise, ID 83720-0083**
Phone	**208-332-8652**
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Email address	**bburleig@agri.state.id.us**
NPPC Program Measure Number(s) which this project addresses **7.6,7.7**	
FWS/NMFS Biological Opinion Number(s) which this project addresses **ESA consultation done on a site specific project by project basis.**	
Other planning document references **This project operates under the "Model Watershed Plan", which is a watershed assessment directed specifically at the Lemhi River, Pahsimeroi River, and East Fork of the Salmon River (all within the upper Salmon sub-basin).**	
Short description **Provide a basis of coordination and cooperation between local, private, state, tribal, and federal fish and land managers, land users, land owners and other affected entities to manage the biological, social and economic resources to protect, restore and enhance anadromous and resident fish habitat.**	
Target species **Chinook Salmon, Steelhead, Bull Trout**	

Section 2. Sorting and evaluation

Subbasin
Salmon

Evaluation Process Sort

CBFWA caucus		CBFWA eval. process		ISRP project type	
X one or more caucus		If your project fits either of these processes, X one or both		X one or more categories	
x	Anadromous fish	x	Multi-year (milestone-based evaluation)	x	Watershed councils/model watersheds
	Resident Fish		Watershed project eval.		Information dissemination

	Wildlife			Operation & maintenance
				New construction
				Research & monitoring
				Implementation & mgt
			x	Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9401700	Idaho Model Watershed Habitat	A co-project of the Model Watershed
	Enhancement Project	project which specifically addresses anadromous fish habitat
9306200	Salmon River Anadromous Fish Passage Enhancement	A co-project for the Model Watershed project area which specifically addresses physical barriers to anadromous fish passage.
9401500	Idaho Fish Screening Improvement-O&M	A related project to reduce fish mortality in irrigation diversions.
8909800	Idaho Supplementation Studies Information Collection	This project is part of ISS research which is used for monitoring and evaluating anadromous and resident stocks within the Model Watershed project area.
9009	Restore the Salmon River, in Challis, Idaho	This projects area is outside the current MWP area, however it compliments the current habitat and passage projects in the upper Salmon River basin.

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1993	Stabilized 200 yards of streambank on East Fork of the Salmon River.	Reduce sediment levels within spawning gravels
1993	Improved 29 irrigation diversion structures on the Lemhi River.	Reduce the number of physical barriers that hinder migration and maintain flows
1994	experimental “fish flush” conducted by irrigators to allow chinook adults passage to spawning areas on Lemhi River.	Reduce the number of physical barriers that hinder migration
1994	Big Flat Ditch siphon completed to reconnect Carmen Creek to the mainstem Salmon River.	Reduce the number of physical barriers that hinder migration
1995	Riparian enhancement fence completed on 4.5 miles of streambank on two ranches in the Pahsimeroi and three ranches on the Lemhi River.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1995	Point of diversion transferred from the Pahsimeroi River to the Salmon River.	Increase instream flows
1995	Two diversions eliminated on Lemhi River with a	Increase instream flows

	combined net savings of 1,600 acre feet of water.	
1995	Seven irrigation diversions consolidated into three irrigation diversions on Lemhi River.	Reduce the number of physical barriers that hinder migration
1996	Three ranches near Leadore construct fencing and implement grazing/pasture management systems along 5.75 miles of critical stream habitat along Lemhi River.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1996	Two canals eliminated from the Salmon River through consolidation into Challis Irrigation Canal.	Reduce the number of physical barriers that hinder migration
1996	Constructed riparian enhancement fences on two ranches in East Fork along 1.75 miles of river.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1996	Diversions EF-7 and EF-8 consolidated on East Fork.	Reduce the number of physical barriers that hinder migration
1997	Completed L-3A diversion structure and bypass system on Lemhi River.	Reduce the number of physical barriers that hinder migration
1997	Reset pipe on old L-5 diversion to provide off-channel rearing habitat on Lemhi River.	Develop new rearing and resting pools.
1997	Constructed 0.75 miles of fence and developed a grazing system for a ranch along the Lemhi River.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1997	Constructed 15 miles of fence on 8.5 miles of the upper Lemhi River along critical chinook spawning and rearing habitat.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks. Reduce sediment levels within spawning gravels.
1997	Streambank stabilization and off-channel rearing site along lower Lemhi River.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks. Develop new rearing and resting pools.
1997	Construction of 0.85 miles of fence on the lower Lemhi stream reach.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1997	Construction of 0.75 miles of fence along Pattee Creek, tributary to Lemhi River.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1997	Riparian pasture management fencing was constructed on three ranches along 3 miles of the Pahsimeroi River.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1997	Phase I of a riparian management project on the East Fork installed a series of instream bank stabilization structures.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1998	At L-8a diversion, a headgate, wasteway, and vortex weir were installed to facilitate fish passage and eliminate gravel push up dams on Lemhi River.	Reduce the number of physical barriers that hinder migration
1998	Riparian fence along 0.90 miles of the upper Lemhi River and Texas Creek, tributary to the Lemhi.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1998	Riparian fence along 1.2 miles of Hayden Creek, tributary to the Lemhi River.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1998	Riparian fence along 1.0 mile of Eighteen mile Creek a headwater tributary of the Lemhi River.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1998	Riparian fence and grazing management system along 1.0 mile of Pahsimeroi River/Patterson Creek.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks
1998	Riparian fence have been started with 3 landowners along 2.8 miles of the East Fork.	Establish riparian vegetative cover to reduce water temperatures and stabilize streambanks

Additional accomplishments include the completion of an inventory of the three rivers, encompassing 9 different river segments (1994) and the subsequent completion of the Model Watershed Plan (1995) which utilized the inventory information in developing goals and objectives.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Coordinate activities for fish habitat maintenance, enhancement and restoration.	a	Meet regularly with SWCD boards and Advisory and Technical Committees to plan, approve and implement projects. Meet with Custer and Lemhi SWCD's for a total of 20 times during the contract period to provide technical advice and solicit local input to instream and riparian projects. Meet twice with Model Watershed Advisory Group for approval of project proposals and to update members on Model Watershed activities. Meet six times with Model Watershed Technical Committee which is composed of resource professionals and local irrigators, to make evaluations of needs, discuss project benefits, and identify new opportunities.
2	Coordinate activities that keep people involved in the Model Watershed process.	b	Conduct and participate in tours and seminars to further education of local participants. Conduct three Model Watershed tours of "on the ground projects." Meet four times with Lemhi County Riparian Conservation Group. This group has been designated as the Watershed Advisory Group for the Lemhi River by the state of Idaho. Provide monitoring data and project information to state agencies involved in the TMDL process. Meet twice with Salmon Basin Advisory Group to coordinate Model Watershed activities with state fish habitat and water quality priorities. Initiate contact with three to five new landowners in priority areas for possible projects. Conduct follow-up evaluations of ten on the ground projects to evaluate effectiveness of projects in meeting habitat goals, confirm maintenance of projects, gauge landowner acceptability of projects, and maintain continued involvement of local citizens.
3	Work with groups and individuals in the Upper Salmon Basin to investigate expansion of the Model Watershed Project.	c	Meet with groups in the Upper Salmon Basin to assist with work and projects. Identify other watershed groups involved in fisheries and water quality issues, promote contact and gain support to work with groups and individuals outside of Model Watershed Project boundaries from Soil & Water Conservation District's and Advisory Committee. Groups identified so far include: Sawtooth Wildlife Council and Custer Watershed Group
4	Document historical development and implementation of Model Watershed Project.	**d**	**Maintain and update progress with photos and narrative on regular basis. Follow through with all aspects of project implementation to enhance fish habitat.**

			This includes one annual and four quarterly reports.

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measurable biological objective(s)	Milestone	FY2000 Cost %
1	01/2000	12/2001	Model WS Assessment	yes	40
2	01/2000	12/2001	Model WS Assessment	yes	30
3	01/2000	12/2001	Model WS Assessment	yes	10
4	01/2000	12/2001	Model WS Assessment	yes	20
				Total	100

Schedule constraints

No constraints exist, Model Watershed Assessment Plan contains general project design, specific tasks and draft approvals for plan completion. However, participation from landowners to install Best Management Practices to benefit the streamside vegetative cover and ultimately the fishery is always uncertain. The current perception of the local Soil and Water Conservation Districts is that if it can be designed to have benefits for the landowner as well as the fish habitat, the landowner will participate. Due to the cooperative nature of the Model Watershed Project, project evaluation can be a complicated and lengthy process. Project scope often changes with the development of consensus, perception of needs, and state and federal permit requirements. Unavailability of technical support can slow down planning needs such as biological assessments and cultural resource clearances. This evolving process makes annual budgeting a difficult task as planners and cooperators become aware of project needs. Also, with annual variation in chinook spawn timing and fish distribution, streamside projects may need to be delayed or expedited accordingly to minimize possible negative impacts to listed species. Further delays may occur to accommodate the management needs of the landowner (i.e. irrigation diversion can't be shut down during critical irrigation periods). Other limiting factors including weather, flooding, and availability of materials can constrain the implementation of projects.

Completion date

2005

Section 5. Budget

FY99 project budget (BPA obligated):	**$175,000**

FY2000 budget by line item

Item	Note	% of total	FY2000 ($)
Personnel	Coordinator, part time office coordinator, and SCC staff support	37	**69,000**
Fringe benefits	Coordinator, part time office coordinator, and SCC staff support	12	**23,000**
Supplies, materials, non-expendable property	Office space, equipment, supplies, vehicle lease	13	**24,000**
Operations & maintenance	Information & education	3	**4,800**
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	None	0	**0**
NEPA costs	Covered in BPA Watershed Mgt. Program final EIS, and project NEPA checklist under	0	**0**

	project 941700		
Construction-related support	N/A	0	**0**
PIT tags	# of tags:N/A	0	**0**
Travel	Coordinator, Office Coordinator, SCC Staff	5	**9,000**
Indirect costs	10% overhead to SCC	9	**17,000**
Subcontractors	Hatch Box Program		**9600**
	T&E Species Consultation		**2500**
	Intern/Volunteer Assistance		**6000**
	GIS Assistance		**5000**
	Watershed Plan Update		**10000**
Other	Advisory Committee, Soil Conservation District expenses	3	**5,500**
		TOTAL BPA REQUESTED BUDGET	**185,400**

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
Landowners	Planning, Labor, Contracting	15	53,100
Idaho Fish & Game	Planning & Tech Support	7	25,600
BLM/US Forest Service	Planning & Tech Support	8	28,700
NRCS	Planning & Tech Support	18	65,800
		Total project cost (including BPA portion)	348,200

Above costs reflect an estimate of technical support received in previous years

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	200,000	200,000	200,000	200,000

Section 6. References

Watershed?	Reference
	A guide to establishing points and taking photographs to monitor watershed management projects. 1993. The Govenors Watershed Enhancement Board. Salem, OR
	Dorratcaque, D. E., 1986. Lemhi River Habitat Improvement Study. BPA contract number DE-AC79-84BP17447, project number 84-28, Portland, OR..
	Feldhausen, S. et. al.1998. Lemhi River Sub-basin Assessment Draft Document.
	Idaho Soil Conservation Commission and Bonneville Power Administration. 1995. Model Watershed Plan for the Lemhi Pahsimeroi and East Fork of the Salmon Rivers, Idaho. DOE/BP-2772, Bonneville Power Administration, Portland, Oregon.
	Northwest Power Planning Council. 1994. Columbia River Basin fish and Wildlife Program. Northwest Power Planning Council, Portland, Oregon.
	U.S. Government, Federal Register. (57 FR 14653) Listing of Snake River fall chinook and Salmon River spring/summer chinook as threatened. April 22, 1992. Washington D. C., 57:14653.
	U.S. Government, Federal Register. (59 FR 42529) Reclassification of Snake River fall chinook and Salmon River spring/summer chinook as endangered. August 18, 1994. Washington D. C., 59:42529.
	U.S. Department of Commerce (USDC). National Oceanic and Atmospheric Administration (NOAA). National Marine Fisheries Service (NMFS). In Review. Final Recovery Plan for Snake River Salmon.

PART II - NARRATIVE

Section 7. Abstract

The Model Watershed Project (Model Watershed Project) was initiated by the Northwest Power Planning Council in 1992 to improve chinook salmon and steelhead habitat in the Lemhi, Pahsimeroi, and East Fork of the Salmon River watersheds. These watersheds provide habitat for approximately 75% of the upper Salmon River anadromous fish. The goal of the project is to maintain, enhance, and restore anadromous and resident fish habitat while also achieving and maintaining a balance between resource protection and resource use on a holistic watershed management basis. This project is administered through The Idaho Soil Conservation Commission and is coordinated through the Idaho Model Watershed Project Advisory and Technical Committee in conjunction with the Lemhi and Custer Soil and Water Conservation Districts and various local, state and federal agencies. Additionally, the Model Watershed Project provides a foundation for other groups such as the Lemhi County Riparian Habitat Conservation Agreement, Custer County Salmon River Conservation Plan, Idaho DEQ Basin and Watershed Advisory Groups, Bureau of Reclamation Water Conservation Program, IDFG screen program and others.

The goal of the project is to maintain, enhance, and restore anadromous and resident fish habitat while also achieving and maintaining a balance between resource protection and resource use on a holistic watershed management basis. Specific habitat goals, as outlined in the Model Watershed Plan, (1995).

The coordination and administration currently funded by BPA is essential to the continuation of habitat and migration enhancement project work in the Upper Salmon River Basin along with being the glue which holds the community together with responsible resource management. This work can only happen with the cooperation of local communities, SWCD's, private landowners, NRCS, IDFG, BLM, USFWS, BoR, USFS, Tribes, NMFS, BPA and others.

Section 8. Project description

a. Technical and/or scientific background

Idaho's Model Watershed Project (MWP) is located in the southeast portion of central Idaho. The project area includes drainages from three Salmon River tributaries: the Lemhi, Pahsimeroi and East Fork of the Salmon River. Together these three rivers encompass a 687,533 hectare (1,698,870 acre) drainage area. Elevations range from 1,220 meters (4,000 feet) above sea level to more than 3,048 meters (10,000 feet) on several mountain peaks. The Model Watershed project area averages 23 centimeters (9 inches) of precipitation annually (Idaho Soil Conservation Commission 1995). The climate is characterized by cold winters and warm summers. Air temperatures during the summer can exceed 37.7°C (100°F) and drop below -17.7°C (0°F) in the winter throughout the Salmon River Subbasin. The Lemhi River runs down the center of a wide, fertile valley. The valley is approximately 4.8 kilometers (3 miles) wide at the mouth gradually narrowing to approximately 0.08 kilometers (½ mile) wide at the town of Lemhi, 54.7 kilometers (34 miles) above the mouth. From Lemhi to Leadore the valley gradually opens out onto a mountain plateau about 8 kilometers (5 miles) wide. The Pahsimeroi River runs down the center of a broad 6-8 kilometer (4-5 miles) wide valley. The East Fork River drainage is very steep and has a valley floor less than 1.6 kilometers (1 mile) wide. The dominant types of riparian vegetation may include: black cottonwood (*Populus trichocarpa*), alder, sandbar willow (*Salix exigua*), yellow willow (*Salix lutea*), Booth's willow (*Salix boothi*), Wood's rose (*Rosa woodsii*), red-osier dogwood (*Cornus sericea*), common spike-rush, Baltic rush, several sedge species, and several pasture grasses. All three watersheds are similar in terms of land use , agricultural operations, community interests, and fisheries problems.

Prior to settlement, chinook salmon were a major dietary staple for the Nez Perce, Shoshone, and Bannock Indians who frequented or seasonally inhabited the tributaries of the upper Salmon River. All three tributaries in the MWP area historically produced major salmon runs. It is estimated that 30,000 to 60,000 chinook salmon were harvested annually by tribal fisherman (Peebles 1971). The salmon run was first exploited commercially by the Mormon missionaries who established Fort Lemhi. It is reported in their journals that they exported seven wagon loads of dried salmon to Salt Lake City in 1857 (Nash 1974). Gold discoveries created the first major influx of

settlers into the region, closely followed by the emergence of the livestock industry in the 1870's. Cattle herds from Oregon, Utah and Montana were grazed in the mountains in the summer and in the lower meadows in the winter. A severe winter in 1899 brought an end to this practice and ranchers began raising and storing hay for winter feeding (ISCC 1995).

Since the 1940's, stocks of chinook salmon entering the MWP area have declined precipitously. Many factors contributed to the decline of these fish runs, including hydropower development, hatcheries, overharvesting, and habitat degradation. The five year average for chinook redds from 1960 to 1965 was 1,200 redds for the Lemhi River, 700 redds for the Pahsimeroi River and 775 redds for the East Fork River. During the last five years, the average redd count was 26 redds for the Lemhi River, 14 redds for the Pahsimeroi River and 17 redds for the East Fork River. Given these major population declines habitat degradation and migration problems have been closely scrutinized. Census of Agriculture data indicate that irrigated agriculture acreage has remained virtually the same from 1944 to 1987 in Lemhi County, ranging from 79,211 acres to 77,646 acres.

Current land ownership and management in the MWP area consists of approximately 95 percent federally managed lands. However, private landowners manage approximately 90 percent of the river flood plains which also encompass the remaining critical habitat for chinook salmon.

Due to these declines the Snake River spring/summer chinook salmon were listed under the Endangered Species Act as threatened on April 22, 1992 (57 FR 42529) and the Lemhi, Pahsimeroi and East Fork of the Salmon River are all classified as critical habitat (57 FR 14653). To assist in recovery efforts, the Lemhi Model Watershed Project was established by the NPPC to attempt to maximize chinook spawning, rearing and migration through habitat enhancements, , lengths of habitat units, width and depths at predetermined intervals, cobble embeddedness, spaw while considering current land use practices through a watershed approach.

Upper Salmon chinook runs have persisted for over 10,000 years. There annual inland migration covers almost 1,448 kilometers (900 miles) and ascends over 1.6 kilometers (1 mile) in elevation. The process of natural selection has equipped local stocks with a unique set of adaptations to survive and return to their natal streams. Over **thirty-two** different chinook stocks are recognized in Idaho. Each specially adapted for persistence in their subbasin. All remaining stocks of chinook salmon and their habitat are critical to the persistence and recovery of this species.

In January 1993, the Lemhi Model Watershed project became the umbrella for salmon recovery activities for the Lemhi, Pahsimeroi and East Fork of the Salmon rivers. The Model Watershed technical team comprised of local, state, and federal agencies initially determined a fisheries habitat inventory was necessary for all three MWP areas to identify habitat conditions and then prioritize recovery actions in each drainage based on fish use and habitat conditions and limitations. Over 193 kilometers (120 miles) of inventories were conducted in 1994 among the three drainages, encompassing 9 different river segments. Each drainage was partitioned into different segments based on geological features, unique biological values and past uses or alterations. Each segment was inventoried using modified protocols developed by the Idaho Division of Environmental Quality. Information collected included substrate composition ning potential, and bank stability. At the completion of the inventory the data was analyzed by stream segment and interpreted for width to depth ratio's and slow water to fast water ratio's results of the segment by segment habitat assessment were then compared to other existing biological data (i.e. water flows, temperature, potential barriers) and a list of prioritized goals and actions were developed for each drainage and among the three drainages. These established goals and actions of the Model Watershed Plan have been used since to direct recovery efforts among the three drainages and river segments. Limiting factors identified through the inventory efforts include: inadequate water flows, excessive water temperatures, lack of bank stabilization and riparian vegetation, elevated sediment levels, and physical barriers to migration. Below lists what has been accomplished to date to address each of these limiting factors. Projects to date have included the savings of 1,600 acre feet of water through the removal and consolidation of irrigation diversions and land transfers on the Lemhi River. This included the L3A, L4, L5, L-6, L7, and L7A diversions on the lower Lemhi River. Since the completion of this project in 1996 the lower river has yet to be dewatered. Prior to this effort, the river would typically be dewatered from 1 to 6 weeks during dry years. This dewatering coincided with the arrival of adult chinook salmon in August just prior to their spawning in the upper Lemhi River (Bjorn, IDFG). In the Pahsimeroi River a diversion structure was eliminated through water right transfer to the Salmon River on the Parkinson Seed Farm. This reconnected approximately 6 miles of habitat that was previously dewatered and provided barrier free fish migration to higher reaches in the river into good quality spring-fed tributaries.

To address the limiting factors of veget excessive water temperatures, lack of bank stability and riparian ation and elevated sediment levels, the MWP has been involved with riparian protection and rehabilitation through riparian fences and willow planting. Riparian fences have included typically one of two management strategies, implemented based on the management needs of the landowner. Either riparian pastures grazed only seasonally to encourage adequate and timely riparian recovery or grazing exclusion with protective easements. To date installation of 35 miles of riparian fences to protect over 27 miles of river bank have been implemented. Monitoring sites within each project have been established to evaluate the effectiveness of the projects. These monitoring programs include vegetation monitoring, stream width and depth monitoring, temperature monitoring and established photo points. Other biological monitoring occurring includes fish density/composition observations and resident fish spawning ground counts. Since the implementation of habitat projects in the upper Lemhi, numbers of spawners in resident rainbow spawning ground counts have increased over 100% in the three sites monitored (IDFG 1998 in review). This indicates that the benefits of habitat improvements are already being realized. Most other data being collected is long term in nature and will take several years for results to be apparent.

Most of the physical barriers to migration within the MWP was identified as man-made irrigation diversions. Since inception of the MWP, 18 diversions have been consolidated and or modified to improve passage of both adult and juvenile fish. Many of the major barriers noted during the habitat inventory have been addressed and many projects are still in progress in cooperation with the MWP.

For the MWP to be successful it must establish a working relationship with the private landowners and resource users to effectively identify and develop remedial actions for areas of concern on private lands. These remedial actions must be developed with the landowner and their management needs for it to be successful. Local private landowners continue to be very interested in working with the MWP in anadromous fish recovery.

The proposed action of the Lemhi Model Watershed Project is supported by the Final Snake River Salmon Recovery Plan (NMFS, in review) and is addressed in Section 7 of the Columbia River Basin Fish and Wildlife Program (NPPC 1994). Both program support the action of protecting and restoring important habitat on federal and private lands, and protecting watersheds that contain good quality habitat that can be readily restored. The proposed actions of the Lemhi MWP will improve water quality (sediment inputs, temperatures) while benefitting the biological needs of salmon, steelhead, bulltrout, and other fish and wildlife species. In addressing, habitat issues the MWP focuses habitat restoration holistically rather than at the single species level. Any remedial habitat efforts directly benefit several listed or proposed listing fishes. All native trout or salmon species present in all three MWP drainages are or are either proposed for listing.

b. Rationale and significance to Regional Programs

The Lemhi Model Watershed Project (MWP) has direct significance to the Regional Fish and Wildlife Program section 7.6C of the 1994 Columbia Basin Fish and Wildlife Authority. This section specifically addresses model watershed projects and their role in helping to reach the stated goals and objectives. Section 7.6C.1 calls for fisheries, land and water managers to develop a more comprehensive set of habitat performance standards taking into account differences in climate, location, soils, topography and other pertinent factors unique to each area (NPPC 1994). The council included in Table 7-1 the elements of habitat performance standards to be measured. The Lemhi MWP followed these elements closely when developing its habitat inventory of 120 miles of stream within the MWP and uses aspects of elements for monitoring and evaluation. FWP section 7.7 directly address habitat protection and improvement with private landowners. The Lemhi MWP was designed and does work for cooperative habitat protection and improvement with private landowners. The Lemhi MWP has effectively “bridged the gap” between private, local, state and federal management on a watershed basis. Habitat issues such as spawning, rearing, and migration habitat have been and are still being directly addressed for anadromous and resident fishes and wildlife on private ground. Specifically, sediment, bank stability, water quality, large woody debris, instream flow, and riparian vegetation are targeted by the habitat management objectives.

Measure 7.6A.1 calls for coordination of human activities on a comprehensive watershed management basis. The Lemhi MWP has fostered the coordination of such activities to benefit the fisheries resource. For example, in August 1994 the MWP coordinated an experimental “fish flush” with the Lemhi River Irrigators. Over 100 irrigators voluntarily participated by turning off diversion water for a 12 hour period. The purpose was to determine if a dewatered section of the Lemhi River, below L-7 diversion, would recharge and allow spring chinook salmon adults to migrate upstream. The experiment was deemed a success and allowed private water users to

voluntarily participate in salmon recovery. Since the "fish flush" experiment, water users in the dewatered portion of the river have worked with the MWP, local, state, and federal agencies to consolidate and retire diversions in this area. Since completion of the L-6 water conservation project in 1996, this section of river has yet to be dewatered.

Measure 7.6A.2 addresses improved productivity of salmon and steelhead habitat which is critical to the recovery of weak stocks. The Lemhi, Pahsimeroi and East Fork Rivers have been designated as critical habitat (57 FR 14653) and all stocks are presently very depressed. The MWP through its efforts in riparian recovery, bank stabilization, and the removal of physical migration barriers is improving habitat productivity while protecting and enhancing critical habitat. Resident rainbow spawning ground surveys conducted within past project areas have increased 100% since 1994, indicating habitat improvements may be working (IDFG 1998, in printing). In the fall of 1998, record numbers of presmolt spring chinook salmon have been observed at a fish trap operated by the Idaho Department of Fish and Game on the mainstem Lemhi River near the mouth of Hayden Creek (Tom Curet, personal communication). Preliminary indications are that egg to smolt survival rates may be higher in 1998 than in any other year since the study was began in 1993. Measure 7.6B.6 encourages involvement with volunteers and educational institutions in cooperative enhancement projects. The MWP has been actively involved with Brooklyn Middle School, Pioneer Elementary School, and the Challis, Leadore, and Shoshone-Bannock High Schools working with streamside incubators and living stream classroom projects. During these activities, school children learn the value of working cooperatively on resource projects and become familiar with the accomplishments of the MWP. In 1999, the Leadore High School is planning a bank stabilization project in the upper Lemhi River with the assistance of the MWP. The Challis High School plans to assist the MWP with bank stabilization on the Pahsimeroi River.

c. Relationships to other projects

BPA Project #941700, Model Watershed Habitat Enhancement Project, directly addresses anadromous fish habitat and supports the Model Watershed project coordination effort. Habitat projects could not be implemented without this funding.

BPA Project #9306200, Salmon River Anadromous Fish Passage Enhancement, is a co-project for the same project area which specifically addresses physical barriers to anadromous fish passage.

BPA Project # 9401500, Idaho Fish Screening Improvement-O&M, is a joint project.

BPA Project # 9009, Restore the Salmon River, in the Challis, Idaho area is outside the current MWP area, however it compliments the current habitat and passage projects in the upper Salmon River basin.

d. Project history (for ongoing projects)

The Lemhi MWP was established in 1992 with an Adminsitration budget for coordination and support #9202603. Project contracts were later added in 1993 for fish passage #9306200 and 1994 for fish habitat enhancement #9401700. This project is highly successful due to the cooperation of local landowners, SWCD boards, government agency personnel and others. It is common to hear "we all want to see the salmon and steelhead back here and we are willing to do our part".

The MWP Plan was finalized in 1995 and outlines habitat goals and objectives and how to implement. A complete stream habitat inventory was completed in 1994 for all three mainstem rivers. This information helps guide prioritization of projects to best help fish and wildlife. We are currently in the implementation phase with around twenty projects per year constructed from BPA grants among other funding sources. Without continued coordination, the projects would most likely not be implemented or fail in the long-term due to poor communication and understanding.

Results are large in scope. We have resolved many high priority issues identified in the MWP Plan. These include major improvements to adult migration barriers in the lower Lemhi and Pahsimeroi Rivers, grazing management on fourteen miles of the Lemhi River and seven miles on the Pahsimeroi River all of which is in active spawning and rearing habitat for salmon/ steelhead. Additionally, a twelve-mile plan has been developed for the most critical spawning and rearing habitat in the East Fork including bank stabilization, grazing management and irrigation management. Already we are implementing four large projects to meet our objectives.

This project is making improvements on one to eight miles of stream habitat with many projects rather than 100 yards at a time. Additionally, BPA funds are only part of the project implementation

e. Proposal objectives

The primary goal of this watershed program is to protect, enhance, and restore salmon habitat, while maintaining a balance between resource protection and use. The MWP strategy has been to first assess resource conditions within each drainage basin, then implement coordinated actions that will help rebuild salmon runs. The Model Watershed Plan (1995) is a critical element of this planning process. Since approximately 90 percent of the occupied salmon habitat in these watersheds is located on private lands, this plan focuses on the habitat problems and opportunities in these areas. Salmon habitat on public lands is being address through other coordinated planning efforts in the area. The Model Watershed Plan (1995) is intended to be a dynamic document that will change over time. Changes are likely to occur as more is learned about the watershed and its processes. Changes may also occur as projects are implemented and evaluated according to plan guidelines, i.e. adaptive management.

Escapement back to the MWP three streams are below a level that maintains the population at current production and rates of return. Projects are aimed at protecting, enhancing and restoring habitat. This program has identified those areas most important for spawning and rearing. Given the limiting factors affecting habitat a series of prioritized objectives and actions were developed. This objectives have been prioritized in the MWP plan according to stream reaches within and between the three watersheds. The objectives include:

1) Provide barrier free passage for adult and juvenile fishes
2) Develop new resting and rearing pools in areas previously altered
3) Enhance and stabilize riparian vegetation communities in critical anadromous spawning and rearing locations.
4) Expand and restore available anadromous and resident fish spawning and rearing areas
5) Reduce sediment levels within spawning gravels.

f. Methods

The MWP Administration/Implementation Support function consists of a combination of the following activites and methods to achieve desired outcomes as defined in the Model Watershed Plan (not necessarily in any order or priority, all comprising the "whole" of the coordination effort):

Activity 1-Program Adiministration and Management. This activity includes the staff interaction with a variety of interest based groups:

Advisory Committee is comprised of a cross section of individuals appointed by the Idaho Soil Conservation Commission. They represent a full range of interests including fisheries (Trout Unlimited), ranchers, agency representatives, technical and environmental disciplines. This group meets 2-3 times per year, guiding and directing the overall MWP process.

Technical Committees are formed by watershed, one each for the Lemhi, Pashsimeroi, and the East Fork. These teams typically meet once each month to review and conduct analysis on all identified projects. Their role is to determine if each project meets standards and/or objectives outlined in the MWP Plan. They also provide monitoring functions, and technical support for biological assessments.

Soil and Water Conservation District Boards serve as the BPA contractor for projects 9401700 (habitat) and 9306200 (passage). Once projects are reviewed and approved by the technical committee, they are forwarded to the monthly meeting of the SWCD Boards for review, approval and funding. The districts provide the basis for landowner agreements and actual project implementation, as well as BPA contract management and oversite.

Idaho Soil Conservation Commission provides overall direction for the Model Watershed process. They also serve as the BPA contractor for this project (900603) and provide functional, clerical, finiancial, and agency support for the Model Watershed Project.

Activity 2-Project Planning. This activity consists of identifying project opportunities with landowners, fish biologists, technical committee members and other interested parties. Besides technical team reviews, there are several on-site visits and project development meetings. This project implementation process includes the following: Project ID, MWP staff review, technical team review, advisory committee review, SWCD review and funding approval, NEPA, Biological Assessments, resource surveys, permits, contracts and implementation for habitat and fish passage projects.

Activity 3- Public Involvement/Education. Consists of the application of information sharing through presentations, tours, newsletters, articiles and school programs. Other contacts include attendence and participation in meetings held by county commissioners, BAG/WAG, irrigation districts, and other watershed groups (Lemhi Riparian Group, Challis Stewardship Committee etc.).

Activity 4- Watershed Coordination Clearing House. This activity includes the coordination of all those activities which lead to successful projects and subsequent long term habitat recovery. This involves collaboration of activities with agencies and enities working on fish habitat and riparian recovery, providing project information requests and documenting activities. Also, maintaining a watershed project database and production of GIS project maps. This includes serving as a clearing house for sub-basin data on water temperatures, water quality and habitat inventory.

Activity 5-Monitoring. This activity consists of setting up baseline plans, implementation of monitoring plans and effectiveness monitoring. Also, data compilation, data collection and storage, including technical evaluation, adaptive management techniques and annual reporting.

Activity 6-BPA Funding and Administration. This activity includes preparing BPA proposals for this project (9202603), Fish Habitat (940700) and Fish Passage (9306200). Also included is the completion for budgets for these proposals, statements of work, quarterly reports, annual reports, and a dialog with BPA COTR's concerning information requests, schedules, modifications etc.

Approach. Since approximately 90% of the critical migration, rearing and spawning habitat is located on private ranch land there is a great concern for achieving and maintaining a balance between resource protection and resource use on a holistic watershed management basis. There are three subbasins Lemhi River, Pahsimeroi River, and East Fork of the Salmon River which are included in the Model Watershed Plan. Although each watershed is different, the habitat problems and solutions are often very similar. One important distinction, however, is that all problems are not equal in terms of their impact on fisheries production. This is true for problems in the same watershed , and when problems and opportunities are compared between the three watersheds. Given these considerations, a series of *prioritized* objectives and actions have been developed to address each of the major habitat problems (Table 1).

These objectives are being accomplished through three separate BPA contracts. The Lemhi Model Watershed Project was established in 1992 with an administration budget for coordination and support #9202603. Two project contracts were later added. In 1993, contract #9306200 for fish passage was added to cover projects that increase instream flows and reduce barriers to migration. In 1994, contract #9401700 for fish habitat enhancement was added to cover projects that establish riparian vegetation and reduce sediment levels.

Habitat Goals and Priorities within each Watershed - Lemhi, Pahsimeroi and East Fork Salmon Rivers (Lemhi Model Watershed Plan, 1995).

	Lemhi River Watershed					Pahsimeroi River Watershed		East Fork of the Salmon River Watershed		
Objectives	River Mouth to Agency Creek	Agency Creek to Hayden Creek	Hayden Creek to Leadore	Big Springs Creek	Hayden Creek	River Mouth to Hooper Lane	Patterson-Big Springs Creek	River Mouth to Herd Creek	Herd Creek to Germania Creek	Herd Creek
Increase instream flows during critical fish migration periods	H	L	L	L	H	H	L	L	L	L
Reduce the number of physical barriers hindering fish migration	H	L	L	L	H	H	M	M	M	M
Develop new rearing and resting pools	L	M	L	M	L	L	L	L	M	L
Establish riparian vegetation along critical areas to provide cover & reduce temperature	M	M	H	H	L	H	H	L	M	H
Reduce the sediment levels within spawning gravels	L	L	H	H	M	L	H	L	L	H

H = Highest priority
M = Medium priority
L = Lowest priority

Critical Assumptions.

1) The hypothesis is that increasing the quantity and quality of vegetation along the sixty miles of fair to good quality habitat in the three river basins will increase the egg to smolt production of anadromous and resident fish in these waters from the current seven to nine percent to fifteen to twenty percent.
2) Riparian vegetation will improve fish habitat by restoring instream and overhead cover, enabling the development of undercut banks, and reducing water temperatures through shading.
3) Deep and dense root systems will increase bank stability and reduce erosion thereby decreasing fine silts in spawning gravels.
4) Establishing protected riparian corridors along critical fish habitat areas can provide cover for rearing fish, help reduce water temperatures, stabilize streambanks, and reduce cobble embeddedness.

Strategies. The following strategies have been used to achieve the Model Watershed Project objectives:

- corridor fencing and implementation of best management practices
- grazing systems which include riparian pastures
- set-aside or conservation reserves of whole pastures that include the stream corridor
- streambank stabilization with willow planting and bank barbs

Habitat inventories indicate there is sufficient quantity of spawning and rearing habitat within the Lemhi watershed to support the desired level of salmon recovery. However, there are opportunities to improve the quality of this habitat which would help increase production levels.

Ranch management plans referenced in Section 4 include best management practices which will limit access and where necessary exclude livestock from riparian areas and streambanks during periods of streambank and vegetative vulnerability. The effect will be to provide plant cover to decrease water temperatures and stabilize stream banks to abate the delivery of sediment to spawning gravels.

Irrigation diversions present a barrier to fish migration as well as diverting smolts from the stream to irrigated pasture. Traditionally, in-stream berms are constructed to guide irrigation water to diversion point each season. This activity is a direct disturbance to areas potentially used for spawning. The proposed consolidation of irrigation diversions on the East Fork of the Salmon River, numbers EF-10/11/12/13, would eliminate the annual disturbance of the streambed and prevent diversion of fish from the river through screening provided from the Idaho Department of Fish and Game.

All strategies require the voluntary participation by private landowners. Therefore, it is necessary to tailor a plan for each individual landowner's operation. Each plan must mold the riparian objectives into the overall ranch objectives. Compatibility of the objectives are necessary for these strategies to succeed.

Monitoring and Evaluation: The Model Watershed Plan (1995) outlines a series of actions designed to improve fish habitat conditions within the three target watersheds of the Lemhi, Pahsimeroi, and East Fork of the Salmon rivers. The ultimate goal is to restore fish numbers to levels that were present in the 1960's.

This plan conducts monitoring on three different levels. The first level of monitoring and evaluation focuses on *implementation monitoring* which includes projects which have been implemented and whether projects were implemented as planned. The second level of monitoring focuses on *effectiveness monitoring* which measures the effects on specific habitat parameters, such as

- sediments in spawning gravels
- water temperatures in relation to ambient air temperature
- stream flows in critical sections
- streambank stability
- water quality
- riparian cover

Individual actions are evaluated, as well as, cumulative effects of different actions. To measure changes in these habitat parameters, reference sites will be established in key watershed reaches. Detailed habitat inventories were conducted in a 1994 Habitat Survey to establish baseline data and monitor future changes. Water temperature data is collected year around using 100 HOBO data loggers. The data is collected through the interagency cooperation of the Model Watershed Technical Committee including Forest Service, Bureau of Land Management, Idaho Fish & Game, the Bureau of Reclamation, and Shoshone-Bannock Tribes, Department of Environmental Quality and others. Fish populations are evaluated annually by the IDFG through snorkel and redd counts.

Existing guidelines such as *Monitoring Protocols to Evaluate Water Quality Effects of Grazing Management on Western Rangeland Streams* and *Idaho Water Quality Monitoring Protocols* will be used to identify monitoring parameters and strategies. All projects will include an individual monitoring and evaluation plan that identifies specific monitoring parameters and the responsible monitoring entity. For example, if an action proposes a pasture management system to enhance riparian vegetation, then changes in plant cover will be monitored using greenline methods to evaluate this action.

All sites are documented with photographs during the scouting phase of the project. Photo-points are used to document visual changes in channel stability and riparian vegetation. Completed projects are photographed annually at a time consistent with previous photographs, using established photo-points. Project monitoring results are reviewed annually .

g. Facilities and equipment

Administration and coordination funding for the Model Watershed Project is provided through BPA contract # 9202603 through the Idaho Soil Conservation Commission. Part of this funding provides office space, phone, fax, copier, meeting table, desks, file cabinets, monitoring camera, computers, computer software, and a vehicle. Other equipment and facilities are shared with other agencies. Without the coordination funding and the help from other agencies and entities, the site-specific projects would not be implemented.

h. Budget

Personnel: Reflects salary for the project coordinator. Also included are the salaries for the office coordinator and Soil Conservation Commission project specialist, coordinator, and clerical support.

Fringe Benefits: Consists of the estimated benefits associated witht he personnel listed above.

Supplies, Materials: Includes the cost of operating the MWP office. Rent, utilities, phone, equipment, computer, software, monitoring, field supplies, postage and miscellanous office and data processing supplies. Also included is the lease of a four-wheel drive pickup truck.

Operations and Maintenance: Targets the information and education activities of the MWP. This includes the production of three newsletters each year to the residents of Lemhi and Custer Counties. Also included are costs associated with photo documentation, presentations, meetings and school programs.

Travel: Includes travel for the coordinator and costs associated with NMWP travel for the office coordinator and SCC staff.

Indirect Costs: Reflect 10% pproject overhead to the Soil Conservation Commission for accounting time and costs associated with accounts receivable and payable.

Subcontractors are reflected in the following professional support:
Archaeologist: Cultural resources planning is required of all land disturbing activities (such as channel revegetation, fencing, etc.) This service is normally provided by cooperating agencies. Occasionally, due to staffing limits and workloads the agencies are unable to respond in a timely manner. In these cases the Model Watershed Project must contract with private entities for these services.

Hatchbox: The hatchbox program is a low cost information and educational tool as well as an effective production tool which hatches over 700,000 steelhead eggs each year with a 75% hatch rate. This is an opportunity for private landowners to recycle used refrigerators which are refurbished as fish egg incubators. Sponsors include private landowners, IDFG, SCC, BPA, and USFS.

T&E Species Consultation: In the event of a "may effect" evaluation for projects, a T& E species consultation is required. If a fish biologist is unavailable from cooperating agencies it will become necessary for the Model Watershed Project to contract with a private entity to conduct the evaluation.

Intern/Volunteer:Utilize students and volunteers to accomplish Model Watershed monitoring, database (GPS) information gathering and other field orientated resource objectives. These activities compliment Idaho Model Watershed Habitat Projects, 9401700, and provide resource management experience to interested segments of the public.

GIS Assistance: technical support to apply GIS techniques and database objective to Model Watershed and other related projects throughtout the sub-basin.

Watershed Assessment Update: Apply watershed assessment criteria to exixiting Model Watershed Plan, including updates in species of concern, water quality and inclusion of tributaries for connectivity.

Section 9. Key personnel

Glenn Seaberg, Project Coordinator, Full Time
Duties: Implements "Model Watershed Plan" on a watershed scale. Works with MWP Advisory Committee and Technical Team to identify and evaluate the impacts of all proposed and implemented actions to fish habitat and fish passage projects on a watershed scale. Provide coordination and leadership in an integrated effort of watershed management on private and public lands. Works with other agencies and landowners in evaluating the impacts of all proposed and implemented actions on watershed management. Supervises office coordinator and project planner. Coordinates and manages funding and budget expenditures for MWP. Assists participants in grant proposals and funding needs for watershed projects. Prepares work plans and budgets for administration, passage, and habitat projects in coordination with the Custer and Lemhi Soil & Water Conservation Districts.

Katie Slavin, Office Coordinator, ½ time or 85 hours a month.

Duties: General office duties including meeting minutes, agendas, filing, computer data entry, and correspondence. Also responsible for newsletters, news releases, and poster board display. Finalizes quarterly reports to BPA and assists with preparation of work plans and budgets.

Allen Bradbury, Project Planner, Lemhi Soil Conservation District employee (Full Time)
Duties: Assist Project Coordinator with planning and implementation of projects at all phases. Collect information and data on projects, meet with landowners or land managers and negotiate contracts for funding. Monitors past and on-going projects and follow-up with funding agencies and landowners.

Kathy Weaver, SCC Program Coordinator, 5% of staff time dedicated to MWS
Duties: Assist with meeting facilitation, information and education consultation and training to MWP Coordinator and Clerk.

Biff Burleigh, SCC Project Specialist, 5% of staff time dedicated to MWS
Duties: Perform liaison between SCC, SCD's, NRCS, and Project Coordinator. Assist Coordinator with progress reports and assess project needs as requested.

SCC Secretarial, SCC staff support clerical, Temporary, part time.
Duties: Employee is responsible for processing and paying all MWP expenses including salaries, office rent, travel, supplies, and equipment leases. All financial transactions are paid from Boise SCC office.

Section 10. Information/technology transfer

The MWP has an aggressive information and education program. The MWP office publishes three newsletters per year which are mailed to all postal patrons in Lemhi and Custer counties plus many other interested parties. Three to four tours of MWP project sites are conducted which are attended by state representatives, county commissioners, interested citizens, agency personnel. All three MWP office employees participate in public speaking and presentations to elementary school children, community members, government officials, and university professors.